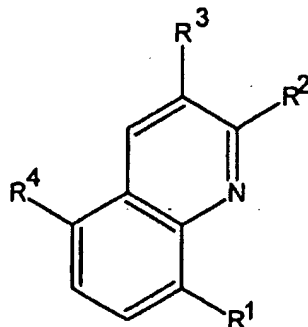


COPY OF ALL CLAIMS

1. (currently amended) A cyclohexenonequinolinoyl ^{compound} derivative of the formula I



where:

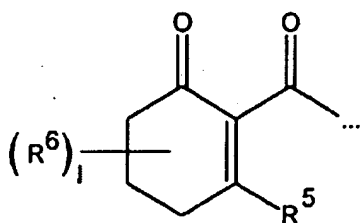
R¹ is hydrogen, nitro, halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxyiminomethyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₁-C₆-alkylsulfonyl, C₁-C₆-haloalkylsulfonyl, C₁-C₆-alkylsulfonyl, C₁-C₆-haloalkylsulfonyl, aminosulfonyl, N-(C₁-C₆-alkyl)aminosulfonyl, N, N-di-(C₁-C₆-alkyl) aminosulfonyl, N-(C₁-C₆-alkylsulfonyl)amino, N-(C₁-C₆-haloalkylsulfonyl)amino, N-(C₁-C₆-alkyl)-N-(C₁-C₆-alkylsulfonyl)amino, N-(C₁-C₆-alkyl)-N-(C₁-C₆-haloalkylsulfonyl)amino, phenoxy, heterocycloxy, or phenylthio or heterocyclithio, it ^{may be} being possible for the four last-mentioned radicals ~~to be~~ partially or fully halogenated and/or ^{may} ~~to~~ carry one to two of the following one to three of the following substituents :

nitro, cyano, C₁-C₄-alkyl, C₁-C₄-haloalkyl,

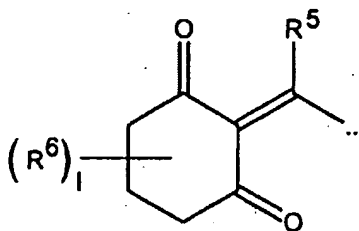
C₁-C₄-alkoxy or C₁-C₄-haloalkoxy;

R², R³ are hydrogen, C₁-C₆-alkyl, C₁-C₆-haloalkyl or halogen;

R⁴ is a compound IIa or IIb



IIa



IIb

where

R⁵ is halogen, OR⁷, SR⁷, SOR⁸, SO₂R⁸, OSO₂R⁸, POR⁸R⁹,
OPR⁸R⁹, OPOR⁸R⁹, OPSR⁸R⁹, NR¹⁰R¹¹, ONR¹¹R¹², N-linked
heterocyclyl or O-(N-linked heterocyclyl), it being possible for
the heterocyclyl radical of the two last-mentioned
substituents to be partially or fully halogenated and/or to

carry one to three of the following radicals:-

nitro, cyano, C_1-C_6 -alkyl, C_1-C_6 -haloalkyl, C_1-C_6 -alkoxy or C_1-C_6 -haloalkoxy;

R^6 is nitro, halogen, cyano, C_1-C_6 -alkyl,
 C_1-C_6 -haloalkyl, di- $(C_1-C_6$ -alkoxy)methyl,
di- $(C_1-C_6$ -alkylthio)methyl,
 $(C_1-C_6$ -alkoxy) $(C_1-C_6$ -alkylthio)methyl, hydroxyl,
 C_1-C_6 -alkoxy, C_1-C_6 -haloalkoxy,
 C_1-C_6 -alkoxycarbonyloxy, C_1-C_6 -alkylthio,
 C_1-C_6 -haloalkylthio, C_1-C_6 -alkylsulfinyl,
 C_1-C_6 -haloalkylsulfinyl, C_1-C_6 -alkylsulfonyl,
 C_1-C_6 -haloalkylsulfonyl, C_1-C_6 -alkylcarbonyl,
 C_1-C_6 -haloalkylcarbonyl, C_1-C_6 -alkoxycarbonyl or
 C_1-C_6 -haloalkoxycarbonyl;

or

two radicals, which are linked to the same carbon,
together form an $-O-(CH_2)_m-O-$, $-O-(CH_2)_m-S-$, $-S-(CH_2)_m-S-$, $-O-(CH_2)_n-$ or $-S-(CH_2)_n-$ chain which is unsubstituted or
substituted by one to three radicals from the following group:
halogen, cyano, C_1-C_4 -alkyl, C_1-C_4 -haloalkyl or C_1-C_4 -
alkoxycarbonyl;

or

two radicals, which are linked to the same carbon,
together form a $-(CH_2)_p$ chain which possibly is interrupted
by oxygen or sulfur and/or is unsubstituted or substituted by
one to four radicals from the following group:
halogen, cyano, C_1 - C_4 -alkyl, C_1 - C_4 -haloalkyl or C_1 - C_4 -
alkoxycarbonyl;

or

two radicals, which are linked to the same carbon,
together form a methylenide group which is unsubstituted or
substituted by one or two radicals from the following group:
halogen, hydroxyl, formyl, cyano, C_1 - C_6 -alkyl, C_1 - C_6 -
haloalkyl, C_1 - C_6 -alkoxy, C_1 - C_6 -haloalkoxy, C_1 - C_6 -alkylthio, C_1 -
 C_6 -haloalkylthio, C_1 - C_6 -alkylsulfinyl, C_1 - C_6 -haloalkylsulfinyl,
 C_1 - C_6 -alkylsulfonyl or C_1 - C_6 -haloalkylsulfonyl;

or

two radicals, which are linked to the same carbon,
together with this carbon form a carbonyl group;

or

two radicals, which are linked to different carbons,
together form a $-(CH_2)_n$ chain which is unsubstituted or

substituted by one to three radicals from the following group:

halogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, hydroxyl or C₁-C₆-alkoxycarbonyl;

R⁷ is C₁-C₆-alkyl, C₃-C₆-alkenyl, C₃-C₆-haloalkenyl, C₃-C₆-alkynyl, C₃-C₆-haloalkynyl, C₃-C₆-cyloalkyl, C₁-C₂₀-alkylcarbonyl, C₂-C₆-alkenylcarbonyl, C₂-C₆-alkynylcarbonyl, C₃-C₆-cyloalkylcarbonyl, C₁-C₆-alkoxycarbonyl, C₃-C₆-alkenyloxycarbonyl, C₃-C₆-alkynyloxycarbonyl, (C₁-C₂₀-alkylthio)carbonyl, C₁-C₆-alkylaminocarbonyl, C₃-C₆-alkenylaminocarbonyl, C₃-C₆-alkynylaminocarbonyl, N,N-di-(C₁-C₆-alkyl)aminocarbonyl, N-(C₃-C₆-alkenyl)-N-(C₁-C₆-alkyl)aminocarbonyl, N-(C₃-C₆-alkynyl)-N-(C₁-C₆-alkyl)aminocarbonyl, N-(C₁-C₆-alkoxy)-N-(C₁-C₆-alkyl)aminocarbonyl, N-(C₃-C₆-alkenyl)-N-(C₁-C₆-alkoxy)aminocarbonyl, N-(C₃-C₆-alkynyl)-N-(C₁-C₆-alkoxy)aminocarbonyl, di-(C₁-C₆-alkyl)aminothiocarbonyl, C₁-C₆-alkylcarbonyl-C₁-C₆-alkyl,

C_1-C_6 -alkoxyimino- C_1-C_6 -alkyl,

N-(C_1-C_6 -alkylamino) imino- C_1-C_6 -alkyl or

N,N-di-(C_1-C_6 -alkylamino)imino- C_1-C_6 -alkyl, it being possible for

the above-mentioned alkyl, cycloalkyl and alkoxy radicals to be partially or

fully halogenated and/or to carry one to three of the following groups:

cyano, C_1-C_4 -alkoxy, C_1-C_4 -alkylthio, di-(C_1-C_4 -alkyl) amino,

C_1-C_4 -alkylcarbonyl, C_1-C_4 -alkoxycarbonyl, C_1-C_4 -alkoxy- C_1 -

C_4 -alkoxycarbonyl, di-(C_1-C_4 -alkyl)amino- C_1-C_4 -

alkoxycarbonyl, hydroxycarbonyl, C_1-C_4 -alkylaminocarbonyl,

di-(C_1-C_4 -alkyl)aminocarbonyl, aminocarbonyl, C_1-C_4 -

alkylcarbonyloxy or C_3-C_6 -cycloalkyl;

phenyl, phenyl- C_1-C_6 -alkyl, phenylcarbonyl- C_1-C_6 -alkyl,

phenylcarbonyl, phenoxycarbonyl, phenoxythiocarbonyl,

phenoxy- C_1-C_6 -alkylcarbonyl, phenylaminocarbonyl, N-(C_1 -

C_6 -alkyl)-N-(phenyl)aminocarbonyl, or phenyl- C_2-C_6 -

alkenylcarbonyl, it being possible for the phenyl radical of

the 10 last-mentioned substituents ^{may} to be partially or fully

halogenated and/or ^{may} to carry one to three of the following

radicals:

phenyl, phenyl- C_1-C_6 -alkyl, heterocyclyl- C_1-C_6 -alkyl, phenylcarbonyl- C_1-C_6 -

alkyl, heterocyclylcarbonyl- C_1-C_6 -alkyl, phenylcarbonyl,

~~heterocyclylcarbonyl, phenoxycarbonyl, heterocyclyloxycarbonyl,
phenoxythiocarbonyl, heterocyclyloxythiocarbonyl, phenoxy-C₁-C₆-
alkylcarbonyl, heterocyclyloxy-C₁-C₆-alkylcarbonyl, phenylaminocarbonyl,
N-(C₁-C₆-alkyl)-N-(phenyl)aminocarbonyl, heterocyclylaminocarbonyl, N-
(C₁-C₆-alkyl)-N-(heterocyclyl)aminocarbonyl, phenyl-C₂-C₆-alkenylcarbonyl
or heterocyclyl-C₂-C₆-alkenylcarbonyl, it being possible for the phenyl and
the heterocyclyl radical of the 20 last-mentioned substituents to be
partially or fully halogenated and/or to carry one to three of the following
radicals:~~

~~nitro, cyano, C₁-C₄-alkyl, C₁-C₄-halogenalkyl, C₁-C₄-alkoxy or
C₁-C₄-haloalkoxy;~~

~~R⁸, R⁹ are C₁-C₆-alkyl, C₃-C₆-alkenyl, C₃-C₆-haloalkenyl, C₃-C₆-
alkynyl, C₃-C₆-haloalkynyl, C₃-C₆-cycloalkyl, hydroxyl, C₁-C₆-
alkoxy, amino, C₁-C₆-alkylamino, C₁-C₆-haloalkylamino, di-
(C₁-C₆-alkyl) amino or di-(C₁-C₆-haloalkyl)amino, it being
possible for the abovementioned alkyl, cycloalkyl and alkoxy
radicals to be partially or fully halogenated and/or to carry
one to three of the following groups:~~

~~cyano, C₁-C₄-alkoxy, C₁-C₄-alkylthio, di-(C₁-C₄-alkyl) amino,
C₁-C₄-alkylcarbonyl, C₁-C₄-alkoxycarbonyl, C₁-C₄-alkoxy-C₁-
C₄-alkoxycarbonyl, di-(C₁-C₄-alkyl)amino-C₁-C₄-~~

alkoxycarbonyl,

hydroxycarbonyl, C₁-C₄-alkylaminocarbonyl, di-(C₁-C₄-alkyl)aminocarbonyl, aminocarbonyl, C₁-C₄-alkylcarbonyloxy or C₃-C₆-cycloalkyl;

phenyl, phenyl-C₁-C₆-alkyl, phenoxy, it being possible for the phenyl radical of the last-mentioned substituents ^{may} to be partially or fully halogenated and/or ^{may} to carry one to three of the following radicals:

phenyl, heterocyclyl, phenyl-C₁-C₆-alkyl, heterocyclyl-C₁-C₆-alkyl, phenoxy, heterocyclyloxy, it being possible for the phenyl and the heterocyclyl radical of the last-mentioned substituents to be partially or fully halogenated and/or to carry one to three of the following radicals: nitro, cyano, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy or C₁-C₄-haloalkoxy;

R¹⁰ is C₁-C₆-alkyl, C₃-C₆-alkenyl, C₃-C₆-haloalkenyl, C₃-C₆-alkynyl, C₃-C₆-haloalkynyl, C₃-C₆-cycloalkyl, hydroxyl, C₁-C₆-alkoxy, C₃-C₆-alkenyloxy, C₃-C₆-alkynyloxy, amino, C₁-C₆-alkylamino, di-(C₁-C₆-alkyl)amino or C₁-C₆-alkylcarbonylamino, where the abovementioned alkyl, cycloalkyl and alkoxy radicals may be partially or fully halogenated and/or may carry one to three radicals from the

following group:

cyano, C₁-C₄-alkoxy, C₁-C₄-alkylthio, di-(C₁-C₄-alkyl)amino, C₁-C₄-alkylcarbonyl, C₁-C₄-alkoxycarbonyl, C₁-C₄-alkoxy-C₁-C₄-alkoxycarbonyl, di-(C₁-C₄-alkyl)amino-C₁-C₄-alkoxycarbonyl, hydroxycarbonyl, C₁-C₄-alkylaminocarbonyl, di-(C₁-C₄-alkyl)aminocarbonyl, aminocarbonyl, C₁-C₄-alkylcarbonyloxy or C₃-C₆-cycloalkyl;

phenyl, or phenyl-C₁-C₆-alkyl, where the phenyl radical of the two last-mentioned substituents may be partially or fully halogenated and/or may carry one to three of the following radicals:

phenyl, heterocyclyl, phenyl-C₁-C₆-alkyl or heterocyclyl-C₁-C₆-alkyl, where the phenyl or heterocyclyl radical of the four last-mentioned substituents may be partially or fully halogenated and/or may carry one to three of the following radicals:-

nitro, cyano, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy or C₁-C₄-haloalkoxy;

R¹¹, R¹² are C₁-C₆-alkyl, C₃-C₆-alkenyl, C₃-C₆-alkynyl or C₁-C₆-alkylcarbonyl;

l is 0 to 6;

m is 2 to 4;

n is 1 to 5;

p is 2 to 5;

and their agriculturally useful salts.

2. (currently amended) A cyclohexenonequinolinoyl ^{compound} derivative of the formula I as claimed in claim 1 where

R¹ is halogen, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-alkylthio, heterocyclyloxy or phenylthio, it being possible for the two last-mentioned radical radicals ^{may} to be partially or fully halogenated and/or ^{may} to carry one to two carry one to three of the substituents mentioned below:

nitro, cyano, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy or C₁-C₄-haloalkoxy;

R⁵ is halogen, OR⁷, SR⁷, SOR⁸, SO₂R⁸, OSO₂R⁸, OPR⁸R⁹, OPOR⁸R⁹, OPSR⁸R⁹, NR¹⁰R¹¹ or N-bonded heterocyclyl, which is unsubstituted or partially or fully halogenated and/or carries one to three of the following radicals:

nitro, cyano, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy or C₁-C₄-haloalkoxy.

3. (currently amended) A cyclohexenonequinolinoyl ^{compound} derivative of the formula I as claimed in claim I, where

R⁵ is halogen, OR⁷, NR¹⁰R¹¹ or N-bonded heterocyclyl which is unsubstituted

~~or partially or fully halogenated and/or carries one to three of the following radicals:~~

~~nitro, cyano, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy or C₁-C₄-haloalkoxy.~~

4. (previously presented) A cyclohexenonequinolinoyl ^{compound} derivative of the formula I as claimed in claim 1, where

R⁷ is C₁-C₆-alkyl, C₁-C₂₀-alkylcarbonyl, C₁-C₆-alkoxycarbonyl, (C₁-C₂₀-alkylthio)carbonyl, N,N-di-(C₁-C₆-alkyl)aminocarbonyl, phenyl, phenylcarbonyl or phenoxy-C₁-C₆-alkylcarbonyl, it being possible for the phenyl radical of the three last-mentioned substituents to be partially or fully halogenated and/or to carry one to three of the following radicals:

nitro, cyano, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy or C₁-C₄-haloalkoxy;

R¹⁰ is C₁-C₆-alkyl or C₁-C₆-alkoxy;

R¹¹ is C₁-C₆-alkyl.

5. (previously presented) A cyclohexenonequinolinoyl ^{compound} derivative of the formula I as claimed in claim 1, where

R⁶ is nitro, halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, di-(C₁-

C₆-alkoxy)methyl, di-(C₁-C₆-alkylthio)methyl, (C₁-C₆-alkoxy)(C₁-C₆-alkylthio)-methyl, hydroxyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkoxycarbonyloxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-haloalkylsulfinyl, C₁-C₆-alkylsulfonyl, C₁-C₆-haloalkylsulfonyl, C₁-C₆-alkylcarbonyl, C₁-C₆-haloalkylcarbonyl, C₁-C₆-alkoxycarbonyl or C₁-C₆-haloalkoxycarbonyl;

or

two radicals, which are linked to the same carbon, together form an -O-(CH₂)_m-O-, -O-(CH₂)_m-S-, -S-(CH₂)_m-S-, -O-(CH₂)_n- or -S-(CH₂)_n chain which is unsubstituted or substituted by one to three radicals from the following group:

halogen, cyano, C₁-C₄-alkyl, C₁-C₄-haloalkyl or C₁-C₄-alkoxycarbonyl;

or

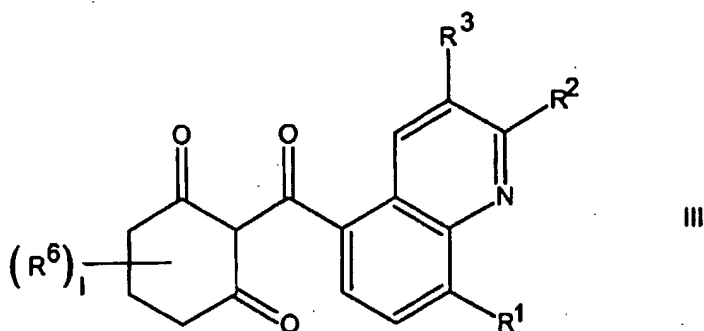
two radicals, which are linked to the same carbon, together form a -(CH₂)_p chain which ^{may be} ~~possibly is~~ interrupted by oxygen or sulfur and which is unsubstituted or substituted by one to four radicals from the following group:

halogen, cyano, C₁-C₄-alkyl, C₁-C₄-haloalkyl or C₁-C₄-alkoxycarbonyl;

or

two radicals , which are linked to the same carbon, together with this carbon form a carbonyl group.

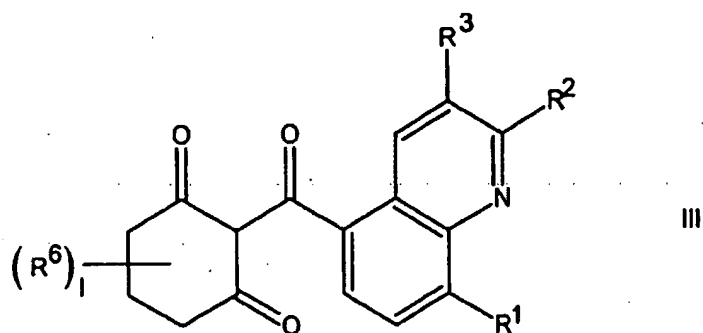
6. (previously presented) A process for preparing compounds of the formula I as claimed in claim 1 where R^5 = halogen, which comprises reacting a cyclohexanedione derivative of the formula III,



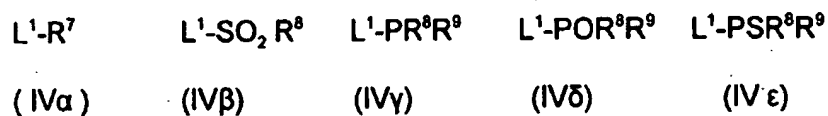
where the variables R^1 to R^3 , and I are each as defined in claim 1, with a halogenating agent.

7. (previously presented) A process for preparing compounds of the formula I as claimed in claim 1 where R^5 = OR^7 , OSO_2R^8 , OPR^8R^9 , $OPOR^8R^9$ or $OPSR^8R^9$,

which comprises reacting a cyclohexanedione derivative of the formula III,



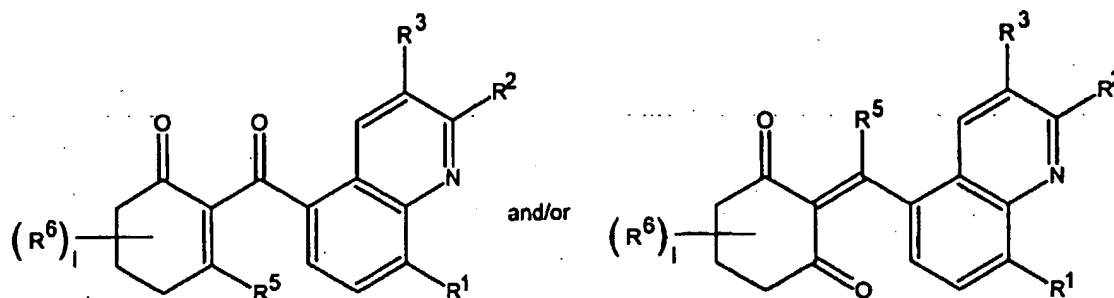
where the variables R^1 to R^3 , and I are each as defined in claim 1, with a compound of the formula IV α , IV β , IV γ , IV δ or IV ϵ ,



where the variables R^7 to R^9 are each as defined in claim 1 and L^1 is a nucleophilically replaceable leaving group.

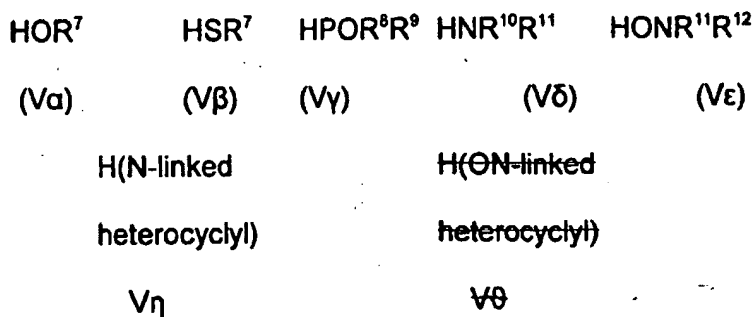
8. (currently amended) A process for preparing compounds of the formula I as claimed

in claim 1 where $R^5 = OR^7, SR^7, POR^8R^9, NR^{10}R^{11}, ONR^{11}R^{12}$, or N-linked heterocyclyl ~~N-linked heterocyclyl~~ or ~~O-(N-linked heterocyclyl)~~, which comprises reacting a compound of the formula I α ($= I$ where $R^5 = \text{halogen, } OSO_2R^9$),



I where $R^5 = \text{halogen or } OSO_2R^9$

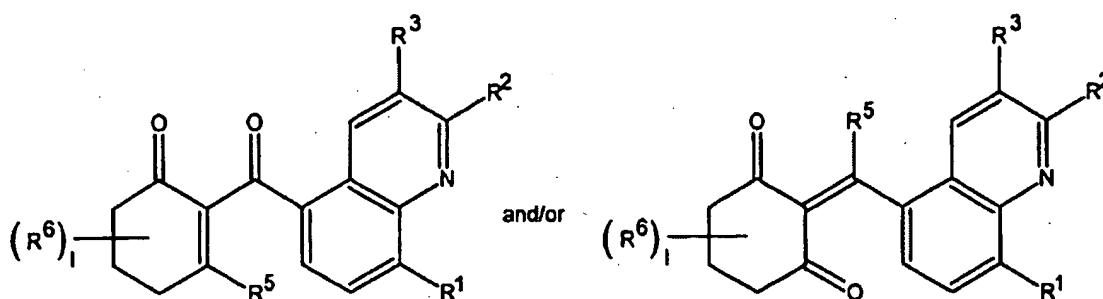
where the variables R^1 to R^3 , R^5 and I are each as defined in claim 1, with a compound of the formula $V\alpha, V\beta, V\gamma, V\delta, V\epsilon, V\eta, V\theta$,



where the variables R^7 to R^{12} are each as defined in claim 1, if appropriate

in the presence of a base.

9. (previously presented) A process for preparing compounds of the formula I as claimed in claim 1, where $R^5 = \text{SOR}^8$, SO_2R^8 , which comprises reacting a compound of the formula I β (\equiv I where $R^5 = \text{SR}^8$),



I where $R^5 = \text{SR}^8$

where the variables R^1 to R^8 and I are each as defined in claim 1, with an oxidizing agent.

10. (previously presented) A composition, comprising a herbicidally effective amount of at least one cyclohexenonequinolinoyl ^{compound} derivative of the formula I or an agriculturally useful salt of formula I as claimed in claim 1 and auxiliaries which

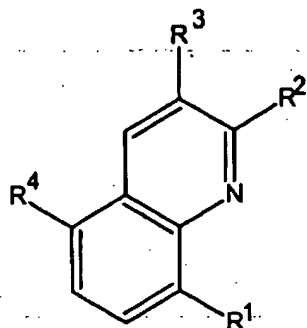
are conventionally used for formulating crop protection agents.

11. (previously presented) A process for preparing a composition as claimed in claim 10, which comprises mixing a herbicidally effective amount of at least one cyclohexenonequinolinoyl derivative of the formula I or an agriculturally useful salt of formula I and auxiliaries which are conventionally used for formulating crop protection agents.

12. (previously presented) A method for controlling undesirable vegetation, which comprises allowing a herbicidally effective amount of at least one cyclohexenonequinolinoyl derivative of the formula I or an agriculturally useful salt of formula I as claimed in claim 1 to act on plants, their habitat and/or on seeds.

13. (canceled)

13 14. (currently amended) A cyclohexenonequinolinoyl ^{compound} ~~derivative~~ of the formula I



where:

R¹ is hydrogen, nitro, halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxyiminomethyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-haloalkylsulfinyl, C₁-C₆-alkylsulfonyl, C₁-C₆-haloalkylsulfonyl, aminosulfonyl, N-(C₁-C₆-alkyl)aminosulfonyl, N, N-di-(C₁-C₆-alkyl) aminosulfonyl, N-(C₁-C₆-alkylsulfonyl)amino, N-(C₁-C₆-haloalkylsulfonyl)amino, N-(C₁-C₆-alkyl)-N-(C₁-C₆-alkylsulfonyl)amino,

N-(C₁-C₆-alkyl)-N-(C₁-C₆-haloalkylsulfonyl)amino,

phenoxy, heterocycloxy, or phenylthio or heterocyclithio, ~~it being~~

~~possible for the two~~ ^{may} ~~four~~ last-mentioned radicals ~~to be~~ partially or fully

halogenated and/or ^{may} ~~to~~ carry one to two ~~one to three~~ of the following

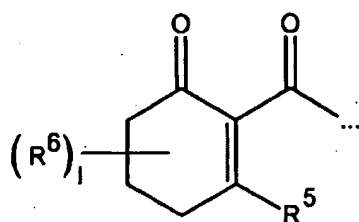
substituents :

nitro, cyano, C₁-C₄-alkyl, C₁-C₄-haloalkyl,

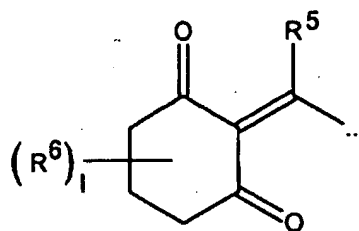
C₁-C₄-alkoxy or C₁-C₄-haloalkoxy;

R², R³ are hydrogen, C₁-C₆-alkyl, C₁-C₆-haloalkyl or halogen;

R⁴ is a compound IIa



IIa



IIb

where

R⁵ is halogen, OR⁷, SR⁷, SOR⁸, SO₂R⁸, OSO₂R⁸, POR⁸R⁹,

OPR⁸R⁹, OPOR⁸R⁹, OPSR⁸R⁹, NR¹⁰R¹¹, ONR¹¹R¹², N-linked heterocyclyl or O-(N-linked heterocyclyl), it being possible for the heterocyclyl radical of the two last-mentioned substituents to be partially or fully halogenated and/or to carry one to three of the following radicals:-
nitro, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy or C₁-C₆-haloalkoxy;

R⁶ is nitro, halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, di-(C₁-C₆-alkoxy)methyl, di-(C₁-C₆-alkylthio)methyl, (C₁-C₆-alkoxy)(C₁-C₆-alkylthio)methyl, hydroxyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkoxycarbonyloxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-haloalkylsulfinyl, C₁-C₆-alkylsulfonyl, C₁-C₆-haloalkylsulfonyl, C₁-C₆-alkylcarbonyl, C₁-C₆-haloalkylcarbonyl, C₁-C₆-alkoxycarbonyl or C₁-C₆-haloalkoxycarbonyl;

or

two radicals, which are linked to the same carbon, together form an -O-(CH₂)_m-O-, -O-(CH₂)_m-S-, -S-(CH₂)_m-S-, -

O-(CH₂)_n- or -S-(CH₂)_n chain which is unsubstituted or substituted by one to three radicals from the following group:

halogen, cyano, C₁-C₄-alkyl, C₁-C₄-haloalkyl or C₁-C₄-alkoxycarbonyl;

or

two radicals, which are linked to the same carbon, together form a -(CH₂)_p chain which ^{may be} ~~possibly is~~ interrupted by oxygen or sulfur and/or is unsubstituted or substituted by one to four radicals from the following group:

halogen, cyano, C₁-C₄-alkyl, C₁-C₄-haloalkyl or C₁-C₄-alkoxycarbonyl;

or

two radicals, which are linked to the same carbon, together form a methylenedioxy group which is unsubstituted or substituted by one or two radicals from the following group:

halogen, hydroxyl, formyl, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-haloalkylsulfinyl, C₁-C₆-alkylsulfonyl or C₁-C₆-haloalkylsulfonyl;

or

two radicals, which are linked to the same carbon,

together with this carbon form a carbonyl group;

or

two radicals, which are linked to different carbons,
together form a $-(CH_2)_n$ chain which is unsubstituted or
substituted by one to three radicals from the following group:
halogen, C_1 - C_6 -alkyl, C_1 - C_6 -alkoxy, hydroxyl or C_1 - C_6 -
alkoxycarbonyl;

R^7 is C_1 - C_6 -alkyl, C_3 - C_6 -alkenyl, C_3 - C_6 -haloalkenyl,
 C_3 - C_6 -alkynyl, C_3 - C_6 -haloalkynyl, C_3 - C_6 -cyloalkyl,
 C_1 - C_{20} -alkylcarbonyl, C_2 - C_6 -alkenylcarbonyl,
 C_2 - C_6 -alkynylcarbonyl, C_3 - C_6 -cyloalkylcarbonyl,
 C_1 - C_6 -alkoxycarbonyl, C_3 - C_6 -alkenyloxycarbonyl,
 C_3 - C_6 -alkynyloxycarbonyl,
(C_1 - C_{20} -alkylthio)carbonyl,
 C_1 - C_6 -alkylaminocarbonyl,
 C_3 - C_6 -alkenylaminocarbonyl,
 C_3 - C_6 -alkynylaminocarbonyl,
N,N-di-(C_1 - C_6 -alkyl)aminocarbonyl,
N-(C_3 - C_6 -alkenyl)-N-(C_1 - C_6 -alkyl)aminocarbonyl,
N-(C_3 - C_6 -alkynyl)-N-(C_1 - C_6 -alkyl)aminocarbonyl,

N-(C₁-C₆-alkoxy)-

N-(C₁-C₆-alkyl) aminocarbonyl, N-(C₃-C₆-alkenyl)-

N-(C₁-C₆-alkoxy) aminocarbonyl, N-(C₃-C₆-alkynyl)-

N-(C₁-C₆-alkoxy) aminocarbonyl, di-(C₁-C₆-alkyl)-

aminothiocarbonyl, C₁-C₆-alkylcarbonyl-C₁-C₆-alkyl,

C₁-C₆-alkoxyimino-C₁-C₆-alkyl,

N-(C₁-C₆-alkylamino) imino-C₁-C₆-alkyl or

N,N-di-(C₁-C₆-alkylamino)imino-C₁-C₆-alkyl, it being possible for

the above-mentioned alkyl, cycloalkyl and alkoxy radicals to be partially or

fully halogenated and/or to carry one to three of the following groups:

cyano, C₁-C₄-alkoxy, C₁-C₄-alkylthio, di-(C₁-C₄-alkyl) amino, C₁-C₄-

alkylcarbonyl, C₁-C₄-alkoxycarbonyl, C₁-C₄-alkoxy-C₁-C₄-alkoxycarbonyl,

di-(C₁-C₄-alkyl)amino-C₁-C₄-alkoxycarbonyl, hydroxycarbonyl, C₁-C₄-

alkylaminocarbonyl, di-(C₁-C₄-alkyl)aminocarbonyl, aminocarbonyl, C₁-C₄-

alkylcarbonyloxy or C₃-C₆-cycloalkyl;

phenyl, phenyl-C₁-C₆-alkyl, phenylcarbonyl-C₁-C₆-alkyl, phenylcarbonyl,

phenoxycarbonyl, phenoxythiocarbonyl, phenoxy-C₁-C₆-alkylcarbonyl,

phenylaminocarbonyl, N-(C₁-C₆-alkyl)-N-(phenyl)aminocarbonyl, or

phenyl-C₂-C₆-alkenylcarbonyl, it being possible for the phenyl radical of

the 10 last-mentioned substituents ^{may} to be partially or fully halogenated

and/or ^{may} to carry one to three of the following radicals:

~~phenyl, heterocyclyl, phenyl-C₁-C₆-alkyl, heterocyclyl-C₁-C₆-alkyl,
phenylcarbonyl-C₁-C₆-alkyl, heterocyclylcarbonyl-C₁-C₆-alkyl,
phenylcarbonyl, heterocyclylcarbonyl, phenoxycarbonyl,
heterocycliloxy carbonyl, phenoxythiocarbonyl,
heterocycliloxythiocarbonyl, phenoxy-C₁-C₆-alkylcarbonyl,
heterocycliloxy-C₁-C₆-alkylcarbonyl, phenylaminocarbonyl, N-(C₁-C₆-
alkyl)-N-(phenyl)aminocarbonyl, heterocyclylaminocarbonyl, N-(C₁-C₆-
alkyl)-N-(heterocyclyl)aminocarbonyl, phenyl-C₂-C₆-alkenylcarbonyl or
heterocyclyl-C₂-C₆-alkenylcarbonyl, it being possible for the phenyl and
the heterocyclyl radical of the 20 last-mentioned substituents to be
partially or fully halogenated and/or to carry one to three of the following
radicals:~~

~~nitro, cyano, C₁-C₄-alkyl, C₁-C₄-halogenalkyl, C₁-C₄-alkoxy or C₁-C₄-
haloalkoxy;~~

~~R⁸, R⁹ are C₁-C₆-alkyl, C₃-C₆-alkenyl, C₃-C₆-haloalkenyl, C₃-C₆-
alkynyl, C₃-C₆-haloalkynyl, C₃-C₆-cycloalkyl, hydroxyl, C₁-C₆-
alkoxy, amino, C₁-C₆-alkylamino, C₁-C₆-haloalkylamino, di-
(C₁-C₆-alkyl) amino or di-(C₁-C₆-haloalkyl) amino, it being
possible for the abovementioned alkyl, cycloalkyl and alkoxy
radicals ^{may} to be partially or fully halogenated and/or ^{may} to carry
one to three of the following groups:~~

cyano, C₁-C₄-alkoxy, C₁-C₄-alkylthio, di-(C₁-C₄-alkyl)amino, C₁-C₄-alkylcarbonyl, C₁-C₄-alkoxycarbonyl, C₁-C₄-alkoxy-C₁-C₄-alkoxycarbonyl, di-(C₁-C₄-alkyl)amino-C₁-C₄-alkoxycarbonyl, hydroxycarbonyl, C₁-C₄-alkylaminocarbonyl, di-(C₁-C₄-alkyl)aminocarbonyl, aminocarbonyl, C₁-C₄-alkylcarbonyloxy or C₃-C₆-cycloalkyl;

phenyl, phenyl-C₁-C₆-alkyl, phenoxy, it being possible for the phenyl radical of the last-mentioned substituents ^{may} to be partially or fully halogenated and/or ^{may} to carry one to three of the following radicals:

phenyl, heterocyclyl, phenyl-C₁-C₆-alkyl, heterocyclyl-C₁-C₆-alkyl, phenoxy, heterocycliloxy, it being possible for the phenyl and the heterocyclyl radical of the last-mentioned substituents to be partially or fully halogenated and/or to carry one to three of the following radicals:
nitro, cyano, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy or C₁-C₄-haloalkoxy;

R¹⁰ is C₁-C₆-alkyl, C₃-C₆-alkenyl, C₃-C₆-haloalkenyl, C₃-C₆-alkynyl, C₃-C₆-haloalkynyl, C₃-C₆-cycloalkyl, hydroxyl, C₁-C₆-alkoxy, C₃-C₆-alkenyloxy, C₃-C₆-alkynyloxy, amino, C₁-C₆-alkylamino, di-(C₁-C₆-alkyl)amino or C₁-C₆-alkylcarbonylamino, it being possible for the abovementioned alkyl, cycloalkyl and alkoxy radicals to be

partially or fully halogenated and/or to carry one to three radicals from the following group:

cyano, C₁-C₄-alkoxy, C₁-C₄-alkylthio, di-(C₁-C₄-alkyl)amino, C₁-C₄-alkylcarbonyl, C₁-C₄-alkoxycarbonyl, C₁-C₄-alkoxy-C₁-C₄-alkoxycarbonyl, di-(C₁-C₄-alkyl)amino-C₁-C₄-alkoxycarbonyl, hydroxycarbonyl, C₁-C₄-alkylaminocarbonyl, di-(C₁-C₄-alkyl)aminocarbonyl, aminocarbonyl, C₁-C₄-alkylcarbonyloxy or C₃-C₆-cycloalkyl;

phenyl, or phenyl-C₁-C₆-alkyl, it being possible for the phenyl radical of the two last-mentioned substituents ^{may} to be partially or fully halogenated and/or ^{may} to carry one to three of the following radicals:

phenyl, heterocyclyl, phenyl-C₁-C₆-alkyl or heterocyclyl-C₁-C₆-alkyl, it being possible for the phenyl or heterocyclyl radical of the four last-mentioned substituents to be partially or fully halogenated and/or to carry one to three of the following radicals:

nitro, cyano, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy or C₁-C₄-haloalkoxy;

R¹¹, R¹² are C₁-C₆-alkyl, C₃-C₆-alkenyl, C₃-C₆-alkynyl or C₁-C₆-alkylcarbonyl;

l is 0 to 6;

m is 2 to 4;

n is 1 to 5;

p is 2 to 5;

and their agriculturally useful salts.

14 15. (currently amended) A cyclohexenonequinolinoyl ^{compound} derivative of the formula I as claimed in claim ¹³ 14, where

R¹ is halogen, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-alkylthio, heterocycloxy or phenylthio, it being possible for the two last-mentioned radical radicals to be partially or fully halogenated and/or to carry one to two one to three of the substituents mentioned below:

nitro, cyano, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy or C₁-C₄-haloalkoxy;

R⁵ is halogen, OR⁷, SR⁷, SOR⁸, SO₂R⁸, OSO₂R⁸, OPR⁸R⁹, OPOR⁸R⁹, OPSR⁸R⁹, NR¹⁰R¹¹ or N-bonded heterocyclyl which is unsubstituted or partially or fully halogenated and/or carries one to three of the following radicals:

nitro, cyano, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy or C₁-C₄-haloalkoxy.

15 16. (currently amended) A cyclohexenonequinolinoyl ^{compound} derivative of the formula I as claimed in claim ¹³ 14, where

R^5 is halogen, OR^7 , $NR^{10}R^{11}$ or N-bonded heterocyclyl which is unsubstituted or partially or fully halogenated and/or carries one to three of the following radicals:

nitro, cyano, C_1-C_4 -alkyl, C_1-C_4 -haloalkyl, C_1-C_4 -alkoxy or C_1-C_4 -haloalkoxy.

16 17. (currently amended) A ^{Compound} cyclohexenonequinolinoyl derivative of the formula I as claimed in claim ¹³ 14, where

R^7 is C_1-C_6 -alkyl, C_1-C_{20} -alkylcarbonyl, C_1-C_6 -alkoxycarbonyl, $(C_1-C_{20}$ -alkylthio)carbonyl, N,N-di- $(C_1-C_6$ -alkyl)aminocarbonyl, phenyl, phenylcarbonyl or phenoxy- C_1-C_6 -alkylcarbonyl, it being possible for the phenyl radical of the three last-mentioned substituents to be partially or fully halogenated and/or to carry one to three of the following radicals:

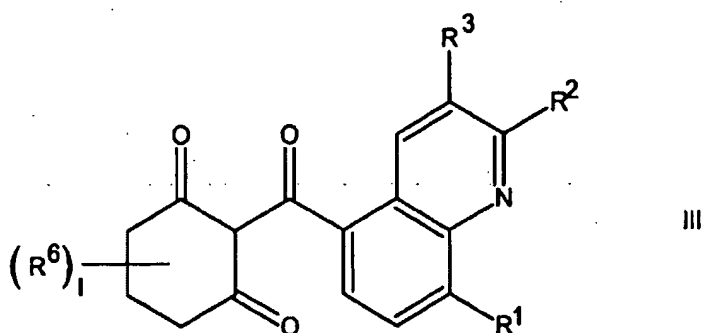
nitro, cyano, C_1-C_4 -alkyl, C_1-C_4 -haloalkyl, C_1-C_4 -alkoxy or C_1-C_4 -haloalkoxy;

R^{10} is C_1-C_6 -alkyl or C_1-C_6 -alkoxy;

R^{11} is C_1-C_6 -alkyl.

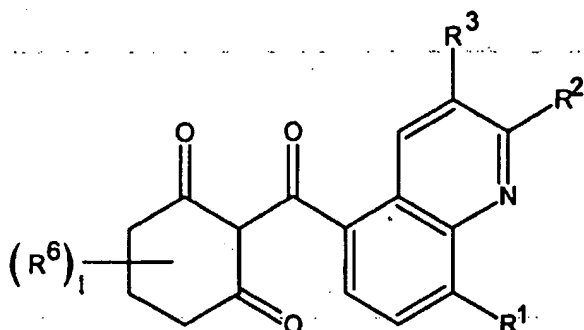
17 18. (previously presented) A process for preparing compounds of the formula I as claimed in claim ¹³ 14 where R^5 = halogen, which comprises reacting a

cyclohexanedione derivative of the formula III,



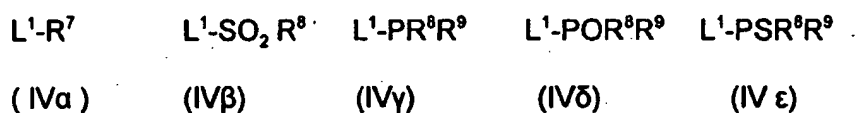
where the variables R^1 to R^3 , and I are each as defined in claim 14, with a halogenating agent.

- ¹⁸
18. (previously presented) A process for preparing compounds of the formula I as claimed in claim ¹³14 where $R^5 = OR^7$, OSO_2R^8 , OPR^8R^9 , $OPOR^8R^9$ or $OPSR^8R^9$, which comprises reacting a cyclohexanedione derivative of the formula III,



III

where the variables R^1 to R^3 , and I are each as defined in claim 14, with a compound of the formula IV α , IV β , IV γ , IV δ or IV ϵ ,



where the variables R^7 to R^9 are each as defined in claim 14 and L^1 is a nucleophilically replaceable leaving group.

19 20. (currently amended) A process for preparing compounds of the formula I as claimed in claim 13 where $R^5 = OR^7, SR^7, POR^8R^9, NR^{10}R^{11}, ONR^{11}R^{12}$, or N-linked



where the variables R¹ to R³, and I are each as defined in claim 14, with a compound of the formula $\text{V}\alpha, \text{V}\beta, \text{V}\gamma, \text{V}\delta, \text{V}\epsilon, \text{V}\eta, \text{V}\alpha, \text{V}\beta, \text{V}\gamma, \text{V}\delta, \text{V}\epsilon, \text{V}\eta, \text{V}\theta,$

heterocyclyl)

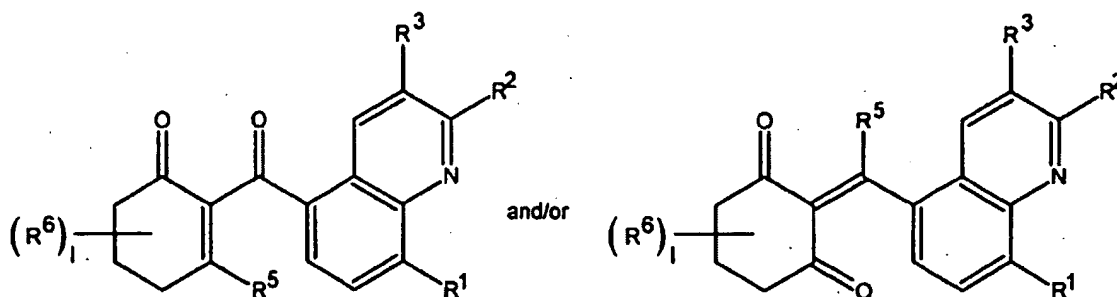
heterocyclyl)

34

appropriate in the presence of a base.

20

21. (previously presented) A process for preparing compounds of the formula I as claimed in claim 14 where $R^5 = \text{SOR}^8$, SO_2R^8 , which comprises reacting a compound of the formula I β ($=\text{I}$ where $R^5 = \text{SR}^8$),



I where $R^5 = \text{SR}^8$

where the variables R^1 to R^5 , R^7 , R^8 and I are each as defined in claim 14, with an oxidizing agent.

21

22. (currently amended) A composition, comprising a herbicidally effective amount of at

least one cyclohexenonequinolinoyl ^{compound} derivative of the formula I or an agriculturally useful salt of formula I as claimed in claim 14 and conventional crop protection formulation auxiliaries ~~which are conventionally used for formulating crop protection agents.~~

²²
23. (currently amended) A process for preparing a composition as claimed in claim 22, which comprises mixing a herbicidally effective amount of at least one cyclohexenonequinolinoyl derivative of the formula I or an agriculturally useful salt of formula I and conventional crop protection formulation auxiliaries ~~which are conventionally used for formulating crop protection agents.~~

²³
24. (previously presented) A method for controlling undesirable vegetation, which comprises allowing a herbicidally effective amount of at least one cyclohexenonequinolinoyl ^{compound} derivative of the formula I or an agriculturally useful salt of formula I as claimed in claim 14 to act on plants, their habitat and/or on seeds.

25. (canceled)